

REJECTIONS UNDER 35 U.S.C. §103(a):

Claims 1, 4, and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Honguh *et al.*, U.S. Patent 5,776,574 (Honguh *et al.*, '574). The rejection is respectfully traversed.

The Examiner asserted that it would have been obvious to one of ordinary skill in the art to arrange the optical disc layers in the claimed order because rearranging parts of an invention involves only routine skill in the art.

However, the Examiner fails to address the Applicants' arrangement of a substrate, a reflective layer, a dielectric layer, a recording layer, and a protective layer as recited in Applicants' claim 1.

Please note that claim 1 recites the substrate having flat portions and micro-embossments, the reflective layer formed on the flat portions and the micro-embossments of the substrate, the dielectric layer formed on the reflective layer, the recording layer formed on the dielectric layer, and the protective layer formed on the recording layer.

In contrast, Honguh *et al.*, '5740 shows a substrate 103, an inner protective layer 104 formed on the substrate 13, a recording material layer 105 formed on the inner protective layer 104, an outer protection layer 106 formed on the recording material layer, a metallic reflection layer 107 formed on the outer protection layer, and a disk protection layer 108 formed on the metallic reflection layer.

Even assuming *arguendo* that all of the layers are rearranged in Honguh *et al.*, '574 as asserted by the Examiner, the rearrangement of the all layers of Honguh *et al.*, '5740 does not suggest the arrangement of Applicants' substrate, reflective layer, dielectric layer, recording layer, and protective layer.

Regarding the Examiner's assertion of the rearrangement of the layers, the Examiner did not present any evidence to show that the rearrangement of the layers does not alter the structure or properties of the embossed substrate or the function of an optical disk, but seemed to rely on the Examiner's knowledge.

According to *In re Zurko*, 258, F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001), substantial evidence or document must be presented to show that no change occurs in

the properties and functions of the optical disk when the layers are rearranged. The Examiner, however, did not present any substantial evidence to support the Examiner's reliance of the common knowledge.

It is well established that all claim limitations must taught or suggest in prior art reference according MPEP 2143.03. Neither the Applicants' a reflective layer formed on the surfaces of the flat portions and the micro-embossments of the substrate nor the Applicant's micro-embossments protruding from the substrate are suggested by Honguh et al. '574.

Since claim 1 is not obvious over Honguh et al. '574, claim 1 is deemed to be allowable. Claims 4 and 11 are also deemed to be allowable at least due to their dependency or the allowable claim 1. Therefore, withdrawal of the rejection of claims 1, 4, and 11 is respectfully requested.

REJECTIONS UNDER 35 U.S.C. §102:

Claims 1 and 2 are rejected under 35 U.S.C. §102(b) as being anticipated by Lee et al., US Patent 5,470,627(Lee et al., '627). The rejection is respectfully traversed.

The examiner asserted in a first paragraph on page 5 of the Office Action mailed on June 10, 2002, that FIG. 4 of Lee et al., '627 clearly shows tracking grooves protruding from the substrate and that regardless of the direction the tracking grooves are directed towards, the tracking grooves are protruding from the substrate.

The Examiner, however, fails to address the Applicants' micro-embossments, which are track guides, **protruding from the flat surface of the substrate** although the Examiner refers the grooves of Lee et al. '627 as to the Applicants' micro-embossments.

Please note that the Applicant's micro-embossments protruding from the flat surface of the substrate means that the micro-embossments protrude **not into the substrate** but from the flat surface of the substrate **toward an outside of the substrate** as the term "protruding" means. Applicants' FIGS. 1 and 2 labeled as PRIOR ART describe the same structure as the grooves of Lee et al. '627 which does not protrude from the substrate but are cut into the substrate. In contrast, Applicants' FIG. 3 discloses the micro-embossments protruding not into the substrate but from the flat surface of the substrate toward the outside of the substrate.

Although the Examiner ignored the direction the tracking grooves are directed towards,

the direction which the tracking grooves are directed towards, is very important in terms of “protruding” since the term “protruding” means “protruding toward the outside of the substrate.”

Lee et al. '627 illustrates in col. 9, lines 14 and 15 that **a microstructure in the form of the grooves 33** is defined to have, nominally, a width of about 0.4um, and **a depth** of 0.1um. Therefore, the grooves of Lee et al. '627 are clearly defined not to protrude from the substrate but to be cut into the substrate.

Even assuming *arguendo* that the grooves of Lee et al. '627 protrude from the side surface 110, the Examiner's assertion results in a contradiction that **the grooves of Lee et al. '627 protrude from the substrate into the substrate.**

Moreover, the grooves of Lee et al. '627 do not show the Applicants' micro-embossments narrowing a width of a track from the micro-embossment toward the flat surface of the substrate. In contrast, a width of a side surface 111 disposed between the grooves of Lee et al. '627 is widened toward the substrate.

It is well established that no claim is anticipated under 35 U.S.C. 102 unless all of the elements are found in exactly the same situation and united in the same way in a single prior art reference. Every element must be literally presented, arranged in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (CAFC 1989). The identical invention must be shown in as complete detail as is contained in the patent claim. *Id.* “**All words in a claim must be considered in judging the patentability of that claim against the prior art.**” *In re Wilson*, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970), and MPEP2143.03. “A claim is anticipated only if each and every element as set forth in the claim is found, **either expressly or inherently described**, in a single prior art reference.” *Verdegaal Bros. V. Union Oil Co., of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Since Lee et al. '627 fails to show the Applicant's micro-embossments protruding from the flat portions of the substrate, claim 1 is patentably distinguishable from Lee et al. '627. Therefore, claim 1 is deemed to be allowable.

Regarding claim 2, Lee et al. '627 shows a V shaped groove 33 having a depth of 0.1 um and being cut into the substrate and also discloses valleys of a grooved shape as described in column 9, lines 14 – 19. In contrast, claim 2 recites the micro-embossments protruding from the flat portions of the substrate and being hills of a peaked hood shape. Therefore, Lee et al. '627 fails to show hills of a peaked hood shape.

Since Lee et al. '627 fails to show the Applicants' micro-embossments protruding from the flat portions of the substrate and being hills of a peaked hood shape, claim 2 is patentably distinguishable from Lee et al. '627. Thus, claim 2 is also deemed to be allowable. As such, withdrawal of the rejection of claims 1 and 2 is respectfully requested.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1–30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lee et al. '627. The rejection is respectfully traversed.

The examiner asserted in a second paragraph on page 5 of the Office Action mailed on June 10, 2002, that FIG. 4 of Lee et al. '627 clearly shows tracking grooves protruding from the substrate and that regardless of the direction the tracking grooves are directed towards, the tracking grooves are protruding from the substrate.

The Examiner also asserted that although Lee et al. '627 does not explicitly disclose the height of the peaked hood shape or grooves or the thickness of the protective layer, height and thickness are optimizable and that it would have been obvious to one of ordinary skill in the art to optimize the components because discovering the optimum or workable values involves only routine skill in the art.

The Examiner, however, also fails to address the Applicants' micro-embossments protruding from the substrate as described above.

Moreover, assuming that Lee et al. '627 discloses the Applicants micro-embossments protruding from the substrate and having the peaked hood shape, the Examiner asserted that the height and the thickness of the components are optimizable.

However, Lee et al. '627 does not disclose any structure corresponding to the Applicants' micro-embossments protruding from the substrate and having the peaked hood shape as mentioned above. Therefore, Lee et al. '627 neither suggests the Applicants' micro-embossments protruding from the substrate nor teaches the Applicants' thickness and height relating to the micro-embossments.

Again, all claim limitations must taught or suggest in prior art reference according MPEP 2143.03. Since Lee et al. '627 neither suggests nor teaches the Applicant's micro-embossments protruding from the substrate and having the peaked hood shape, claims 1, 12,

and 27 are not obvious over Lee et al., '627. Therefore, claims 1, 12, and 27 are deemed to be allowable.

Regarding claims 2–11, 13–26, and 28–30, Lee et al. '627 discloses the shape and depth of the grooves in column 9, lines 14–19 but does not disclose the Applicants' micro-embossments protruding from the substrate and having the peaked hood shape at all. Therefore, Lee et al. '627 neither suggests the shape, the height, and thickness of the Applicants' micro-embossments nor teaches any optimum or workable values relating to the thickness and the height of each layer since Lee et al. '627 fails to show the Applicants' micro-embossments protruding from the substrate and having the peaked hood shape.

Moreover, all values regarding the thickness and the height disclosed in Lee et al., '627 are based on the layers formed on the grooves cut into the substrate. No optimum or workable values relating to the thickness and the height of Applicant's layers formed on micro-embossments protruding from the substrate is suggested in Lee et al., '627. It is noted that the thickness or the height of each layers formed on the micro-embossments cannot be suggested without disclosing the Applicants' micro-embossments.

Furthermore, Lee et al. '627 fails to show the Applicants' first protrusions protruding from a first surface of the substrate as defined in claims 12–23 and 27–28. Lee et al. '627 also fails to disclose the Applicants' second protrusions protruding from a second surface of the substrate as defined in claims 24–26 and 29–30 although Lee et al. '627 discloses grooves 33 cut into the substrate 110 from opposite sides 111 of the substrate 110.

Therefore, claims 2–11, 13–26, and 28–30 are deemed to be allowable at least due to their dependency on the allowable claims 1, 12, and 27, respectively. As such, withdrawal of the rejection of claims 1–30 is respectfully requested.

CONCLUSION:

In view of the foregoing amendments and remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art and therefore defines allowable subject matter. A prompt and favorable reconsideration of the rejection, along with the indication of allowability of all pending claims are therefore respectfully requested.

If there are any formal matters remaining after this response, the Examiner is requested

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to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please **AMEND** claims 1, 12, and 27 in accordance with the following:

1. (TWICE AMENDED) An optical disc comprising:

a substrate having flat portions, which correspond to tracks having a width, and micro-embossments, which are track guides, protruding from surfaces of the flat portions and narrowing the width of the tracks toward the substrate to enhance a recording density;

a reflective layer formed on the surfaces of the flat portions and the micro-embossments of the substrate;

a dielectric layer formed on the reflective layer;

a recording layer formed on the dielectric layer; and

a protective layer formed on the recording layer.

12. (ONCE AMENDED) An optical disc comprising:

a substrate having a first surface, which corresponds to a track having a width, with first protrusions extending from the first surface, wherein the first protrusions are track guides for data and narrows the width of the track toward the substrate to enhance a recording density.

27. (ONCE AMENDED) An optical disc which stores data, comprising:

a substrate having a first surface, which corresponds to a track having a width; and
first protrusions extending from the first surface, wherein the first protrusions are track guides for the data and narrows the width of the track toward the substrate to enhance a recording density.